



**American Water Works
Association**

The Authoritative Resource on Safe WaterSM

ANSI/AWWA C115/A21.15-05
(Revision of ANSI/AWWA C115/A21.15-99)

AWWA Standard

Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Threaded Flanges



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Foreword

This Foreword is for information only and is not part of ANSI/AWWA C115/A21.15.

I. Introduction.

I.A. *Background.* American National Standards Institute (ANSI) Committee A21 on Cast-Iron Pipe and Fittings was organized in 1926 and sponsored by the American Gas Association (AGA), the American Society for Testing and Materials (ASTM), the American Water Works Association (AWWA), and the New England Water Works Association (NEWWA). Between 1972 and 1984, the co-secretariats were AGA, AWWA, and NEWWA, with AWWA serving as administrative secretariat. In 1984, the committee became an AWWA committee with the name AWWA Standards Committee A21 on Ductile-Iron Pipe and Fittings. In 1988, NEWWA withdrew as a separate secretariat; however, it continues to maintain its representation on the A21 Committee. In 1997, AGA withdrew as co-secretariat.

The present scope of Committee A21 activity is the development of standards and manuals addressing ductile-iron pressure pipe for water and ductile-iron and gray-iron fittings for use with such pipe. These standards and manuals include topics such as design, dimensions, materials, coatings, linings, joints, accessories, methods of inspection and testing, and installation.

The work of Committee A21 is conducted by subcommittees. The scope of Subcommittee 1, Pipe, includes the periodic review of all current Committee A21 standards for pipe, the preparation of revisions and new standards, and other matters pertaining to pipe standards.

I.B. *History.* Flanged fittings, sizes 3 in. through 48 in. (76 mm through 1,219 mm), are described in ANSI/AWWA C110/A21.10, American National Standard for Ductile-Iron and Gray-Iron Fittings for Water. Flanged fittings, sizes 54 in. through 64 in. (1,400 mm through 1,600 mm), are covered in ANSI/AWWA C153/A21.53, American National Standard for Ductile-Iron Compact Fittings for Water Service. The flanged pipe used with these fittings has been purchased for many years in accordance with users', manufacturers', and fabricators' standards. An ANSI standard was needed for flanged pipe. Consequently, Subcommittee 1 submitted a proposed standard for flanged pipe to Committee A21 in 1974. The first edition of the standard was adopted in 1975. Subsequent revisions to ANSI/AWWA C115/A21.15 were approved by the AWWA Board of Directors in 1983, 1988, 1994, and

1999. Subcommittee 1 reviewed the 1999 edition and submitted a proposed revision to Committee A21 in 2003. This sixth edition of ANSI/AWWA C115/A21.15 was approved by the AWWA Board of Directors on June 12, 2005.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the American Water Works Association Research Foundation (AwwaRF) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.* Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF, NSF[†]/ANSI[‡] 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.
4. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,[§] and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

*Persons outside the United States should contact the appropriate authority having jurisdiction.

†NSF International, 789 N. Dixboro Road, Ann Arbor, MI 48105.

‡American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

§Both publications available from National Academy of Sciences, 500 Fifth Street, N.W., Washington, DC 20418.

Annex A, “Toxicology Review and Evaluation Procedures,” to NSF/ANSI 61 does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of “unregulated contaminants” are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

ANSI/AWWA C115/A21.15 does not address additives requirements. Users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by all parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues.

II.A. *Flange Material Properties.* Because this standard requires the material properties of gray-iron and ductile-iron flanges to comply with ANSI/AWWA C110/A21.10, the following material properties specified in ANSI/AWWA C110/A21.10 are listed for information purposes.

1. Gray-iron flanges, in accordance with ANSI/AWWA C110/A21.10, shall be manufactured of the following minimum tensile-strength iron listed in Table F.1.

Table F.1 Gray-iron flange minimum tensile strength

Nominal Size [*] <i>in.</i> [†]	Minimum Tensile Strength	
	<i>psi</i>	<i>(kPa)</i>
3–12	25,000	(172,000)
14–24	30,000	(207,000)

^{*}Purchasers of gray-iron flanges greater than 24 in. should contact the manufacturer or fabricator for strength requirements.

[†]To convert inches to millimeters, multiply by 25.4.

2. Ductile-iron flanges made in accordance with ANSI/AWWA C110/A21.10 shall be manufactured of grades of ductile iron with the following minimum physical properties:

70,000 psi (483,000 kPa) tensile strength,
50,000 psi (345,000 kPa) yield strength, and
5 percent elongation;